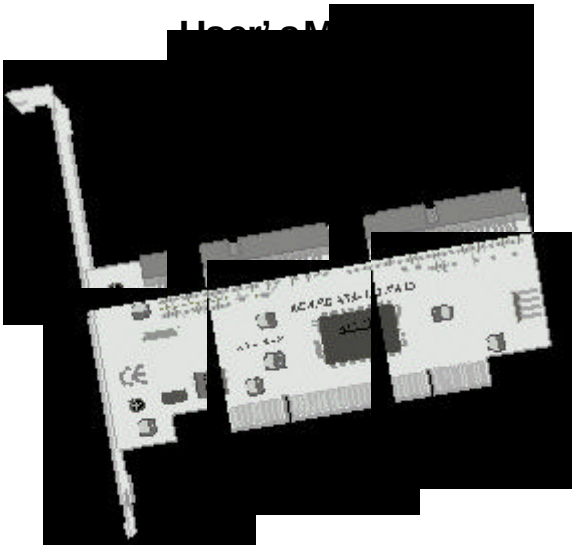
ACARD ATA-133 RAID
AEC-6880

PCI-to-IDE ATA-133
RAID Controller

User's M



Version:1.5

ACARD
TECHNOLOGY

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Chapter 1 Introduction

1.1 Introduction

ACARD AEC-6880, a PCI bus master ATA-133 RAID adapter, is designed to support striping (RAID 0), mirroring (RAID1) as well as RAID 0+1, and enhance the performance. With ACARD ATA-133 RAID in RAID 0 Striping Mode, you can increase the performance and reliability of PC desktops. Furthermore, the card can be used as a normal adapter.

1.2 Feature

- An individual PCI-to-IDE RAID controller
- Can be configured as RAID or normal IDE adapter
- Supports true Hardware RAID 0, RAID 1 and RAID 0+1 (under Windows)
- Supports Ultra ATA 133/100/66/33 HDD
- Low price, high performance

1.3 Packing List

When you open the *ACARD AEC-6880* package, please check the following items.

- One *ACARD AEC-6880*
- Two ATA-133 Cables
- One Y-splitter Cable for Power
- One User' s Manual

1.4 Specification

Power requirement - voltage : 3.3V+/- 2%
5V+/- 2%
current : 0.5A Max.

Environment - Temperature
Operating 0 °C to 70 °C
Storage -20 °C to 85 °C

Humidity - 15% to 90%

Dimentions - Models: AEC-6880
Width: 14 cm
Height: 4.7 cm

Connectors - Dual 40 pins IDE internal connectors

Chapter 2 Hardware Installation

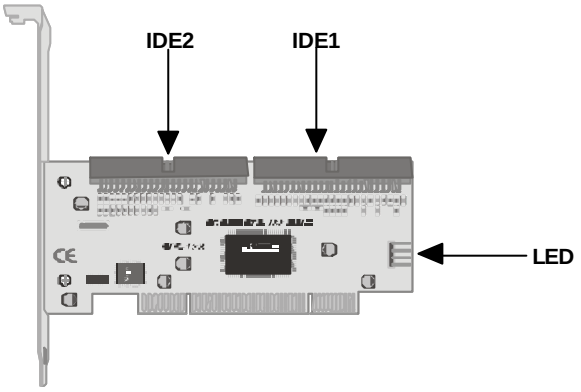
2.1 Quick start hardware installation

1. Open the PC case
2. Plug *ACARD AEC-6880* adapter in an empty slot
3. Screw it onto the computer
4. Connect ATA-133 cable from the adapter to the hard drives
5. Close the PC case

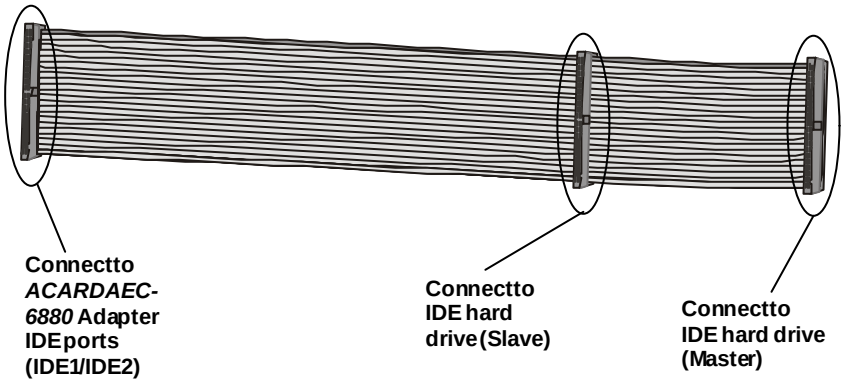
2.2 *ACARD AEC-6880* Board Layout

IDE1: The Primary IDE port

IDE2: The Secondary IDE port



ATA-133 Cable Layout



2.3 *ACARD AEC-6880* cable & power installation

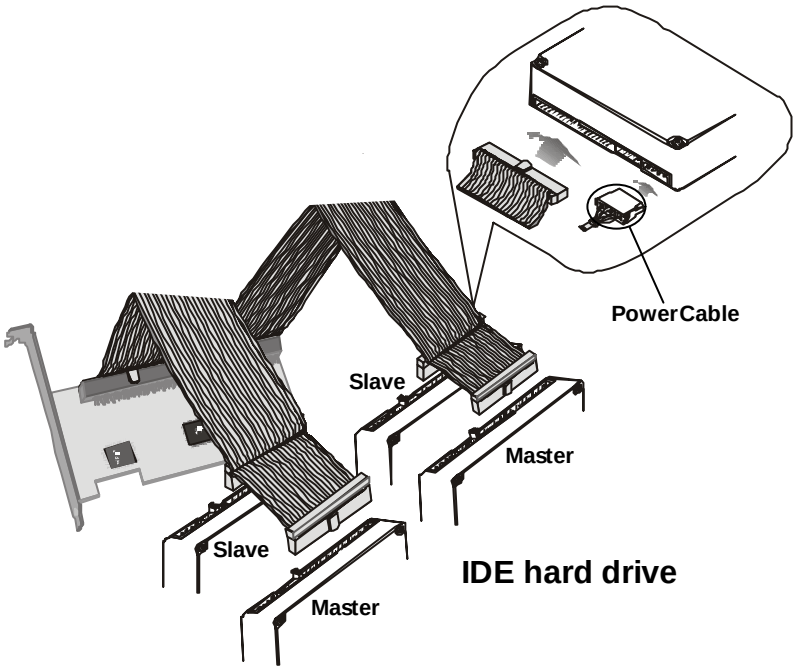
The cable connection methods:

Step 1. Find out pin 1 of IDE connector on IDE hard drive.

Step 2. Find out the colored edge of the cable, which indicates pin 1.

Step 3. Attach the cable to each hard drive. Then attach one cable to each of the connectors by the way of pin1 to pin 1.

Step 4. Connect 4-pin power cable to the IDE hard drive.



For the hard drive' s Jumper setting (Master / Slave), refer to the User' s Guide of hard drive.

2.4 What you should know before the installation

Before installing the *ACARD AEC-688*0, you should read the following tips to enhance the performance.

2.4.1 Striping Mode

- If two hard drives has different storage capacity, *ACARD AEC-6880* will regard the small-capacity hard drive as a standard one; then the total capacity of the two hard drives will be twice as much as that of the standard. In other words, you will lose some capacity if you use two hard drives with different capacity.

- For **one pair striping** connection using 2 HDD, the Jumper set on each hard drive must in the same mode (either both "Master" or both "Slave"). Two hard drives must connect to two independent ATA-133 cables on *ACARD AEC-6880* card.

- When you select an ATA 133 RAID striped array, the Jumpers on both the hard drives must be attached to the same mode (either "Master" or "Slave"). When you select two ATA 133 RAID striped arrays, the Jumpers on four hard drives must be attached to the same mode. However, the first array is formed by Master connector on IDE1 to Master connector on IDE2; the second array is formed by Slave connector on IDE1 to Slave connector on IDE2. When you select four hard drives as one striping array, never attach four Jumpers to the same mode (all to Master or Slave).

- In order to have better performance, please use the same hard drive model, ex. Ultra ATA 66, 100 or 133.

2.4.2 Mirror Mode

- If the two hard drives have different capacity, *ACARD AEC-6880* can' t back up the data from a larger HDD to a smaller HDD.

- When it is on the Mirror Disk Array, to increase its performance, please ensure that you use the HDD, ATA-66, ATA-100 or ATA-133, which should be at the same speed.

- After you select the Mirror Disk Array, if there are some data in the HDD, please select Build Mirror Disk and the correct Source.

2.4.3 Normal Mode

- Two IDE connectors on *ACARD AEC-6880* can be treated as normal IDE extension ports.

- Jumpers on two HDDs which are on the same cable can' t be Master or Slave at the same time.

- In order to achieve the best performance, please use the same hard drive model, ex. Ultra ATA 66, Ultra ATA 100 or Ultra ATA 133 hard drive.

That the hard drives contain old data might cause the OS installation problems. Blank hard drives can achieve the best performance.

2.5 Compatibility list

ACARD AEC-6880 is specifically designed for DMA hard drive, and has been fully tested on the hard drives, which are available in the lab. *ACARD AEC-6880 s*upports various ATA 66/100/133 hard drives as follows:

- Quantum
  FireBall LM series, LC series , LB series
  FireBall KX series, KA series
  FireBall CX series, CR series , EX series
  FireBall EL series

- Seagate
  Barracuda IDE series
  ST320430A , ST313620A , ST3240AT ,
  ST38422A, ST36531A

- IBM
  DTLA series, DPTA series, DTTA series, DJNA series

- Maxtor
  54098U8, 52049U4 , 91366U4 , 94098U8 , 91020U3

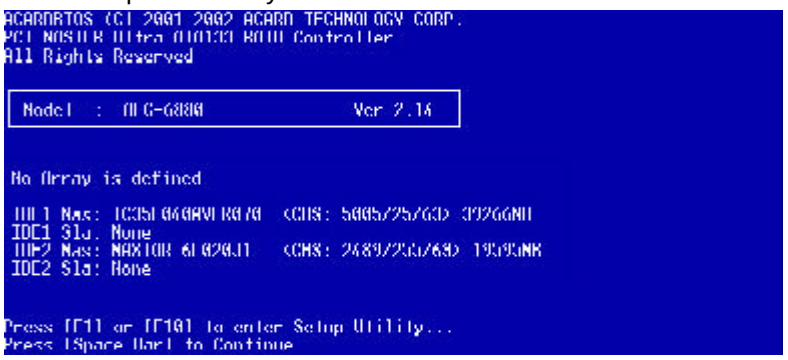
- Fujitsu
  MPF-3204AT, MPD-3173AT, MPD-3084AT

- Western Digital
  Expert 13BA, Caviar AC14300

For the lastest compatibility list, please refer to http://www.acard.com

Chapter 3 BIOS Setup

Plug the *ACARD AEC-6880* IDE RAID card in the PCI slot, while the PC remains power on. When you see the following messages, press <F1> or <F10> to setup RAID utility.

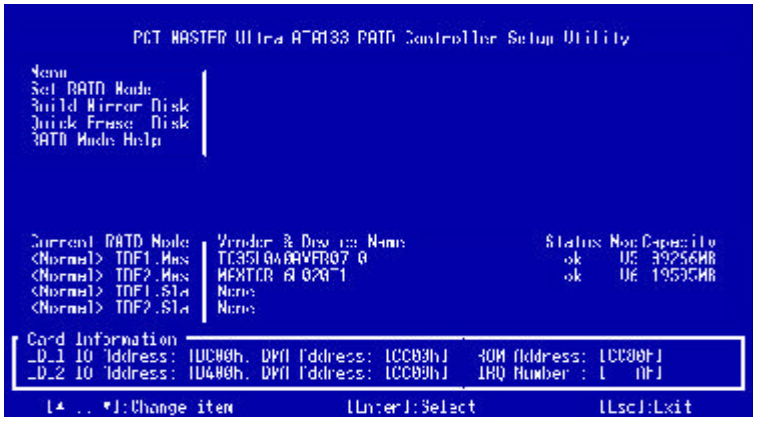

Model : AEC-6880 Ver 2.14
No Array is defined
IDE1 Slv: None
IDE2 Slv: None
Press [F1] or [F10] to enter Setup Utility...
Press [Space Bar] to Continue

3.1 Viewing BIOS Setup Configuration and Status

【Array 0】: It's the first Disk Array that is formed by IDE1-Master and IDE2-Master.

【Array 1】: It's the second Disk Array that is formed by IDE1-Slave and IDE2-Slave.

Use <↑ >,<↓ > to make a selection and press <Enter> to execute the function or press <Esc> to exit the menu. Following is how to setup Utility.



Current RAID Mode

【IDE1.Mas】: It means the HDD on IDE1-Master.

【IDE1.Sla】: It means the HDD on IDE1-Slave.

【IDE2.Mas】: It means the HDD on IDE2-Master.

【IDE2.Sla】: It means the HDD on IDE2-Slave.

Status

BAD: It means that the hard disk can' t work or it can' t work on the RAID mode, please check the hardware installation and RAID setting.

Mode

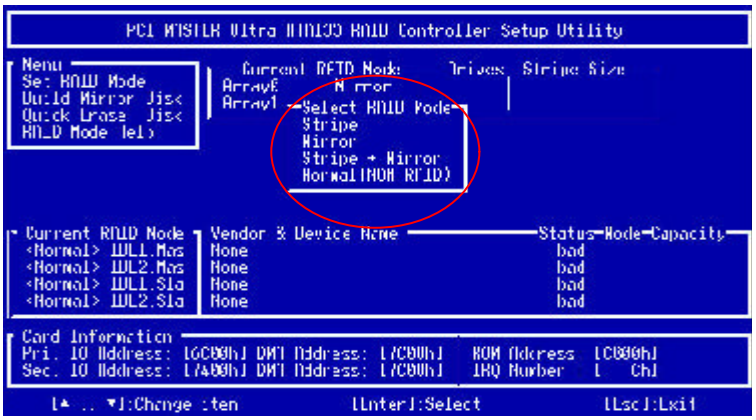
【U6】U6: It means UDMA 6, which the hard disk is in ATA-133 specification

【U5】U5: It means UDMA 5, which the hard disk is in ATA-100 specification

【U4】U4: It means UDMA 4, which the hard disk is in ATA-66 specification

3.1.1 Set RAID Mode

When you select " Set RAID Mode", you will see the following message.



3.1.2 Explanation of each RAID mode

- ***Stripe* (4 or 3 Drives)** Select RAID 0 (Striping Mode) to operate. Setup the ACARD AEC-6880 to connect with 3 HDD or 4 HDD devices into a Stripe Disk Array.

- ***Stripe * Stripe*** Setup two Master HDD devices, IDE1-Master HDD and IDE2-Master HDD on the AEC-6880, into one Stripe Disk Array (Array 0). Then setup two Slave HDD devices, IDE1-Slave HDD and IDE2-Slave HDD on the AEC-6880, into one Stripe Disk Array (Array1). Both Array 0 and Array 1 are on RAID 0 Stripe Mode.

- ***Mirror * Mirror*** Setup two Master HDD devices, IDE1-Master HDD and IDE2-Master HDD on the AEC-6880, into one Mirror Disk Array (Array 0). Then setup two Slave HDD devices, IDE1-Slave HDD and IDE2-Slave HDD on the AEC-6880, into one Mirror Disk Array (Array1). Both Array 0 and Array 1 are on RAID 1.

- ***Mirror * Stripe*** Setup two Master HDD deivces, IDE1-Master HDD and Ide2-Master Hdd on the AEC-6880, into one Mirror Disk Array (Array 0). Then setup two Slave HDD deivces, IDE1-Slave HDD and IDE2-Slave HDD on the AEC-6880, into one Stripe Disk Array (Array1).

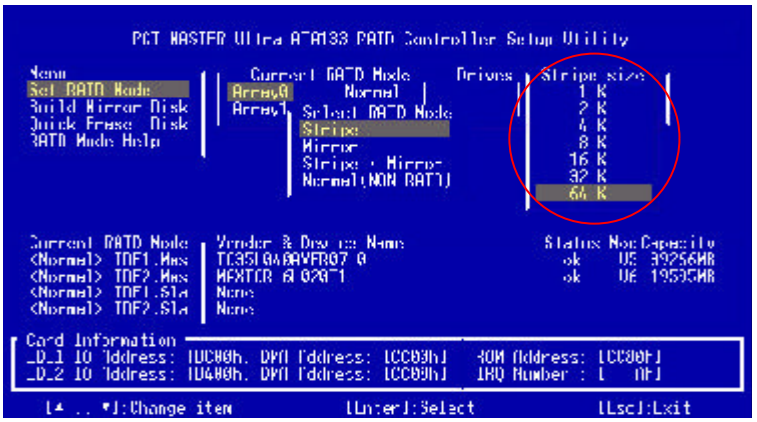
- ***Stripe * Mirror*** Setup two Master HDD deivces, IDE1-Master HDD and Ide2-Master Hdd on the AEC-6880, into one Stripe Disk Array (Array 0). Then setup two Slave HDD deivces, IDE1-Slave HDD and IDE2-Slave HDD on the AEC-6880, into one Mirror Disk Array (Array1).

- ***Stripe + Mirror*** Setup IDE1-Master HDD and IDE2-Slave HDD on the AEC-6880, into one Stripe Disk Array (Array 0). Then setup IDE1-Slave HDD and IDE2-Master HDD on the AEC-6880, into one Stripe Disk Array (Array1). Both Array 0 and Array 1 are on RAID 1 (Mirror Mode). It is also called RAID 0/1 or RIAD 10.

■ ***Normal*** The normal mode, not on RAID mode.

3.1.3 Stripe Size

When you select RAID 0 (Stripe Mode), there are four setup modes, ***Stripe (4 Drives), Stripe * Stripe, Stripe * Mirror, Mirror * Stripe, Stripe + Mirror .*** Regarding the Stripe size, there are 7 setup options, 1K, 2K, 4K, 8K, 16K, 32K, 64K. Select the best one according to the system requirements. In general, on the MS DOS operating system, select 1K Stripe size while on Windows NT operating system, select 64K Stripe size.



When you finish the RAID mode setting, you can read the following message and reboot the computer immediately. <Y> —Save the RAID mode setting and reboot the computer. <N> —Not save the RAID mode setting and return to the " Set RAID Mode" on the Menu.

3.1.4 Build Mirror Disk

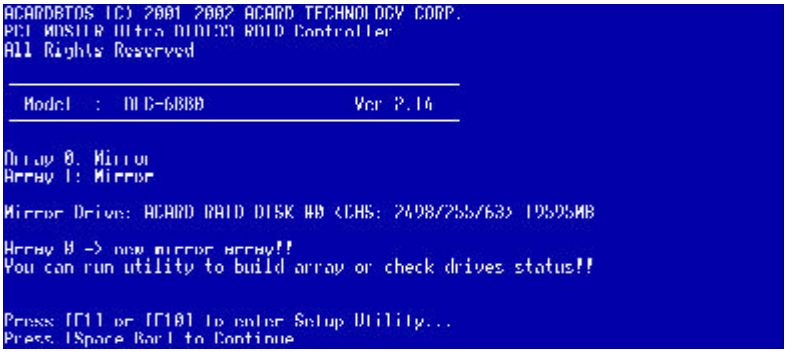
Before running this function, you have to select RAID 1 (Mirror Mode) and then restart the computer. After restarting the computer, you can see the following message.

Array_0 => bad mirror array !!

Array_1 => bad mirror array !!

You can run utility to build array or check drives status !!

It means that you haven' t finished duplicating. Press <F1> or <F10> to enter " Build Mirror Disk" from Menu to duplicate data to hard disk. Press Enter to confirm the source disk, and the data will be copied to another drive.


ACARDBIOS (C) 2001 2002 ACARD TECHNOLOGY CORP.
All Rights Reserved
Model : AEC-6880 Ver 2.14
Array 0: Mirror
Array 1: Mirror
Array 0 -> new mirror array!!
You can run utility to build array or check drives status!!
Press [Space Bar] to Continue

While a failed drive in a disk array, the starting screen will display the following message:

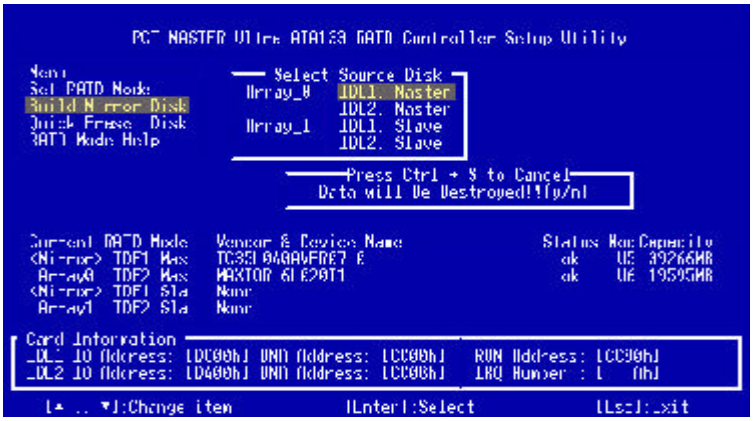
Array_0 => bad mirror array!!

Array_1 => bad mirror array!!

You can run utility to build array or check drives status!!

Press <F1> or <F10> to enter Setup Utility to check the hard disk status.

1. Run “ Build Mirror Disk” . Select a source disk and press <Enter>. It will automatically backup your data from the source disk to another Mirror disk.



2. During the backup process, you will see the following screen. If necessary, you may use <Ctrl+S> to interrupt the duplicating.
3. When the duplicating completes, please press any key to continue.

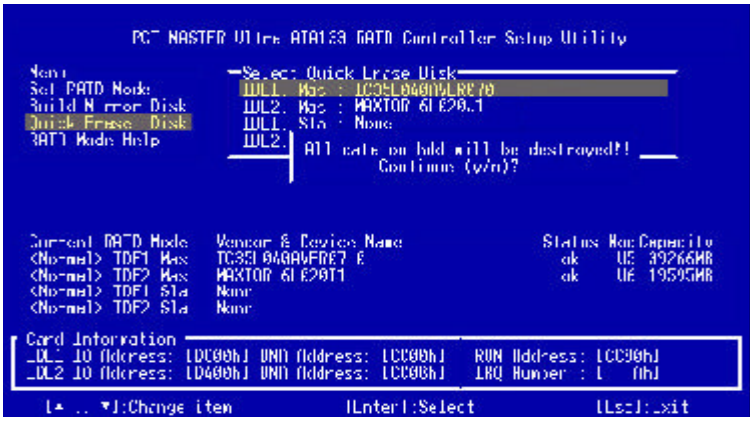
※ On Normal mode and RAID 0 (Stripe) mode, the “ Build Mirror Disk” will not take any effect.

3.1.5 Quick Erase Disk

It can erase the data on hard drive content quickly. Please beware that the data and the partition will be completely erased

1. After selecting “ Quick Erase Disk” , you can read the hard disk information. Use <↑ ,↓ > to select hard disk and then press <Enter>.

2. Then, you will see the message as follows: All data on HDD will be destroyed!! Press <Y> for erasing the data or <N> for keeping data.



3. The data is being erased; please wait.
4. When it is completed, you may press any key to continue.
5. Please check the hard disk sector if you see the following message.

Chapter 4 System Installation

4.1 Normal Mode Installation

4.1.1 DOS Environment

For Boot Device

1. Complete *ACARD AEC-6880* hardware installation.
2. Boot up the computer; then press <Del> to enter the motherboard' s BIOS setup. Change "**Boot Sequence**" into A:.
3. Restart the computer by a DOS bootable floppy and run DOS FDISK. Then create a Primary partition onto the hard drive.
4. After that, you have to reboot up the computer again; then run the DOS FORMAT command.

Non Boot Device

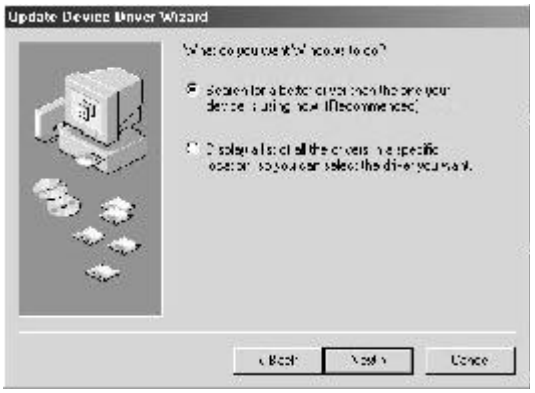
1. Complete *ACARD AEC-6880* hardware installation.
2. Boot up the computer; then press <Del> to enter the motherboard' s BIOS setup. Change "**Boot Sequence**" into C:.
3. Restart the computer, and run MS-DOS and DOS FDISK. Then create a Primary partition onto the hard drive.
4. After re-booting, run the DOS FORMAT command.

4.1.2 Windows 95/98/ME Environment

Non Boot Device

1. Complete *ACARD AEC-6880* hardware installation.
2. The system will detect any new device and ask for directory to access the device driver. Click "**Next**" to go on.

3. Select "**Search for the best driver for your device (Recommend)**". Then click "**Next**".



4. Windows will display the message when the system finds the driver for it, and it is going to install the driver.
5. Select " Specify a location". Please insert the directory of AEC6880.inf for it (such as a:\WIN9X).

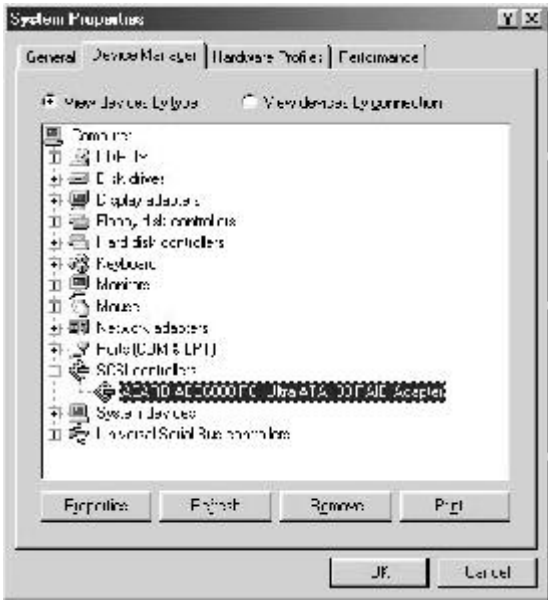
6. Follow the procedures, the system will complete the action automatically.

7. Restart the computer.

Verify *ACARD AEC-6880*

After booting up the system, follow the direction below on the Device Manager find out whether the *ACARD AEC-6880* has been installed completely.

Step 1. Enter "**My Computer**" and double click on "**Control Panel**".
Step 2. Double click on "**System**" and enter "**Device Manager**".
Step 3. Click the "**SCSI controller**" to check whether *ACARD AEC-6880* adapter has been installed properly.



For Boot Device

For bootable drive, install Windos 95/98/ME operation system installation onto *ACARD AEC-6880* drive first. Restart the computer, and then install the *ACARD AEC-6880* driver when system access.

4.1.3 Windows 2000/NT Environment

Driver installation is required when it is the first time to setup Windows 2000/NT into the System

For Boot Device

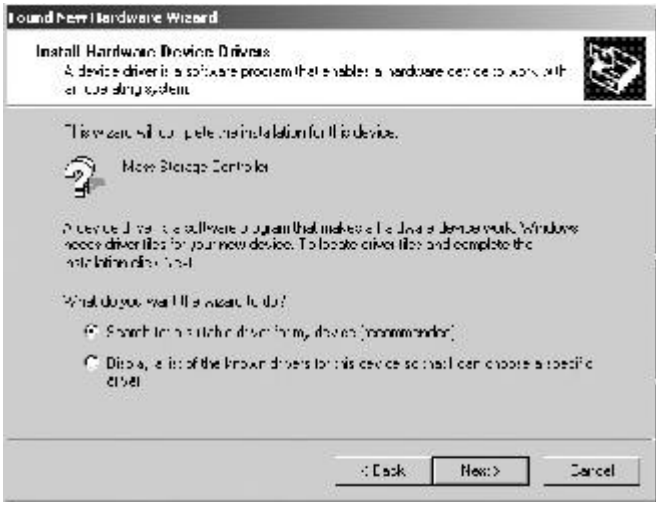
AEC6880.SYS is designed for Microsoft Windows 2000/NT miniport drivers. It allows driver connects to IDE devices, which support Microsoft.

1. Insert Windows 2000/NT bootable disk and use it to boot up the computer. (If you use a CD-ROM to boot up the computer, please press "F6" for the starting screen)
2. Follow the Windows 2000/NT setup procedures.
3. Press "S" to skip mass storage devices detection.
4. Move the highlight bar to "**the other**" and press "Enter".
5. Before installing, copy the AEC-6880's driver into a floppy diskette first. Then insert the *ACARD AEC-6880* driver disk into the floppy.
6. The ACARD Miniport driver should be highlighted at this stage. Press "Enter" to proceed.
7. Windows 2000/NT should now recognize the ACARD Miniport driver and the IDE hardware. Please follow the Microsoft Windows 2000/NT installation procedures.

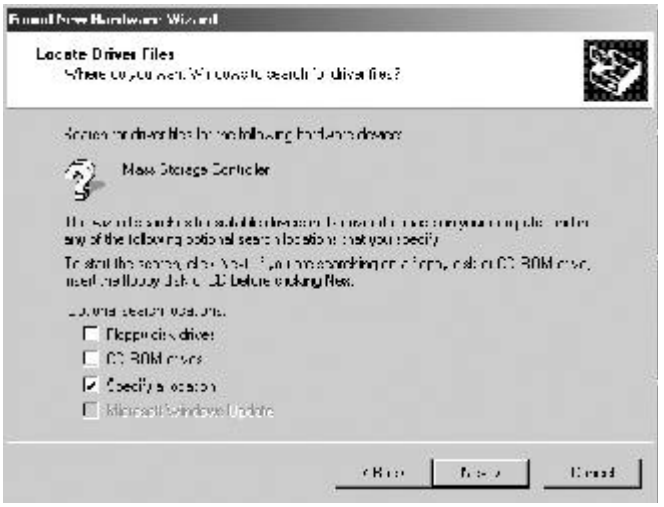
Install Driver for Windows 2000/NT

After Windows 2000/NT has been installed, you may wish to plug the *ACARD AEC-6880* device on the Windows 2000/NT system. Follow the procedures below.

1. Complete *ACARD AEC-6880* hardware installation.
2. The system will detect a new device and ask for directory to access the driver. Select **"Search for a suitable driver for my device (Recommended)**". Then click "**Next**".

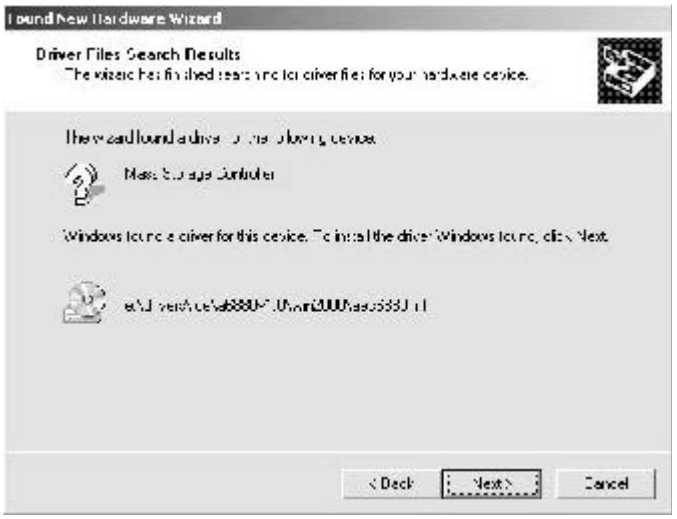


3. Follow the wizard, Windows will ask for the driver files' location. Select "**Specify a location**".

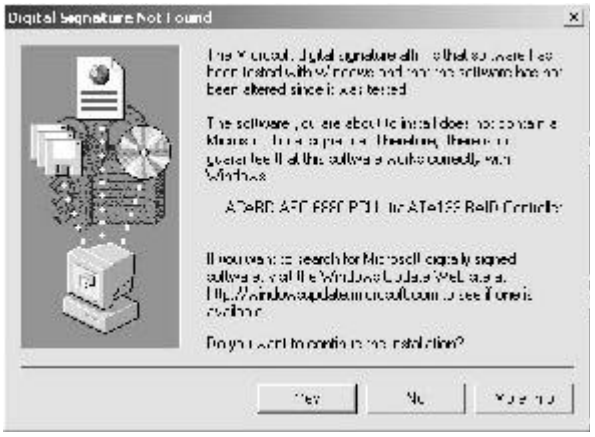


4. Select "**Browse**" to find out the driver' s directory of AEC6880.inf (such as A:\Win2000).

5. The wizard will find a driver for IDE adapter. Click on "**Next**" to install the driver.



6. Click on "**Yes**" to continue the installation.

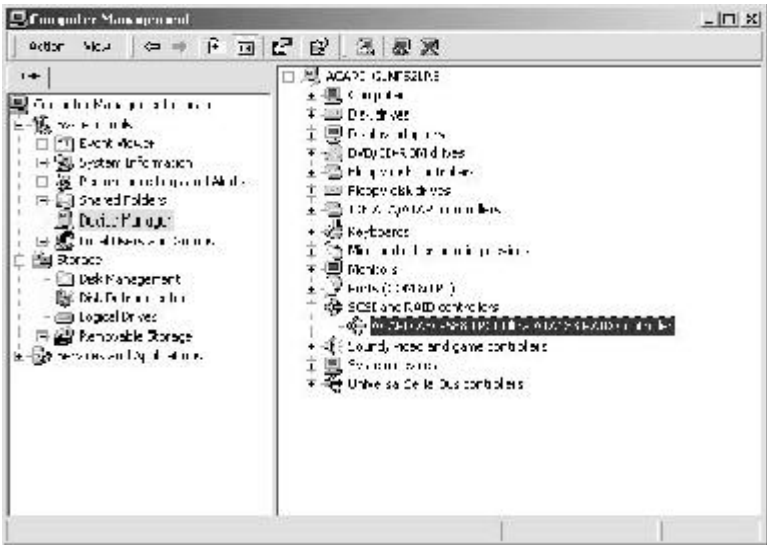


7. Follow the directions; the system will complete the setup automatically.

Verify *ACARD AEC-6880*

After system has been booted, follow the directions below to check the "**Device Manager**" and check whether the *ACARD AEC-6880* has been installed.

Step 1. Enter "**My Computer**" and double click on "**Control Panel**".
Step 2. Find "**System**", double click on it.
Step 3. In "**System Properties**", select "**Hardware**" and click on "**Device Manager**".
Step 4. On "**SCSI and RAID controllers**" to double click on "**ACARD AEC-6880 PCI Ultra ATA133 RAID Controller**" to check whether the device has connected to AEC-6880.



4.1.4 Windows XP Environment

Driver installation is required when it is the first time to setup Windows XP into the System

For Boot Device

AEC6880.SYS is designed for Microsoft Windows XP miniport drivers. It allows driver connected to IDE devices, which support Microsoft.

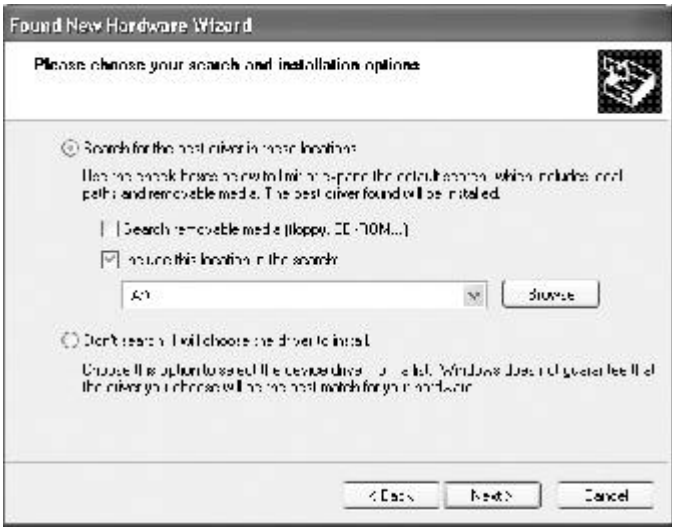
1. Insert Windows XP bootable diskette and use it to boot up the computer. (If you use a CD-ROM to boot up the computer, please press "F6" for the starting screen)
2. Follow the Windows XP setup procedures.
3. Press "S" to skip mass storage devices detection.
4. Move the highlight bar to "**the other**" and press "Enter".
5. Before installing, copy the AEC-6880's driver into a floppy diskette first. Then insert the *ACARD AEC-6880* driver diskette into the floppy.
6. The ACARD Miniport driver should be highlighted at this stage. Press "Enter" to proceed.
7. Please follow the Microsoft Windows XP installation.

Install Driver for Windows XP

After Windows XP has been installed, you may wish to plug the *ACARD AEC-6880* device on the Windows XP system. Before pluging, follow the procedures to install driver manually.

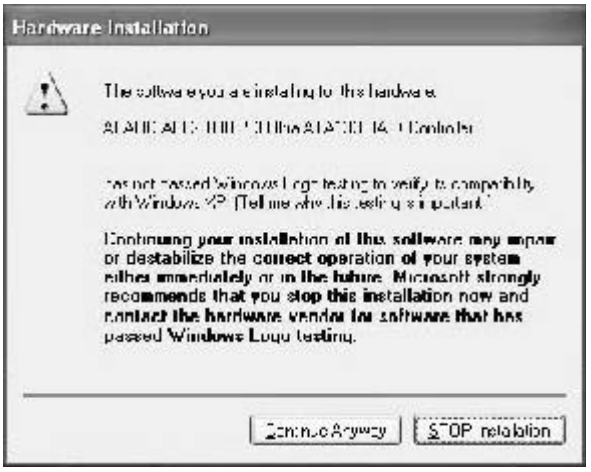
1. Complete *ACARD AEC-6880* hardware installation.
2. The system will detect a new device and ask for directory to access. Select " **Install from a list or specific location (Advanced)**". Then click "**Next**".

3. Follow the wizard, and Windows will ask for the driver' s location. Select "**Include this location in the search**".
4. Then select "**Browse**" to find out the driver' s directory of AEC6880.inf (such as A:\WinXP).



5. The wizard will find a driver for IDE adapter. Click on "**Next**" to install the driver.

6. Click on "**Continue Anyway**" to continue the installation.



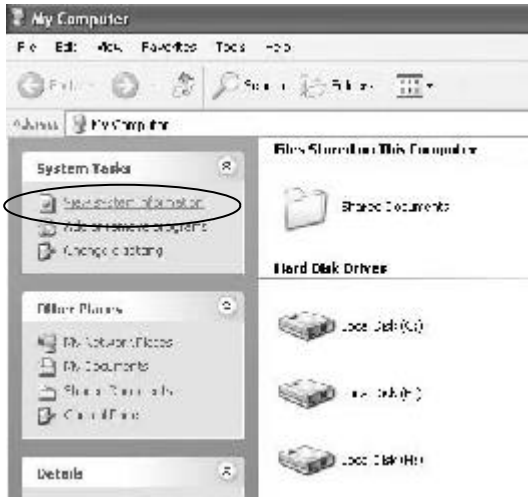
7. Follow the directions; the system will complete the setup automatically.

Verify *ACARD AEC-6880*

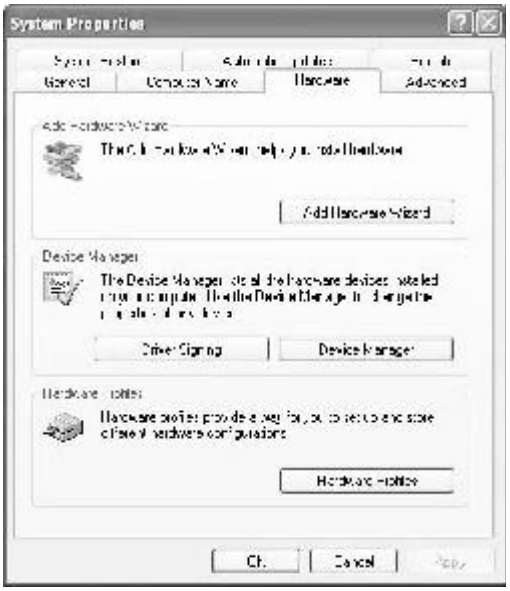
After the system booted, follow the directions below to check "**Device Manager**" and check whether the *ACARD AEC-6880* has been installed.

Step 1. Press "**Start**" and select "**My Computer**"

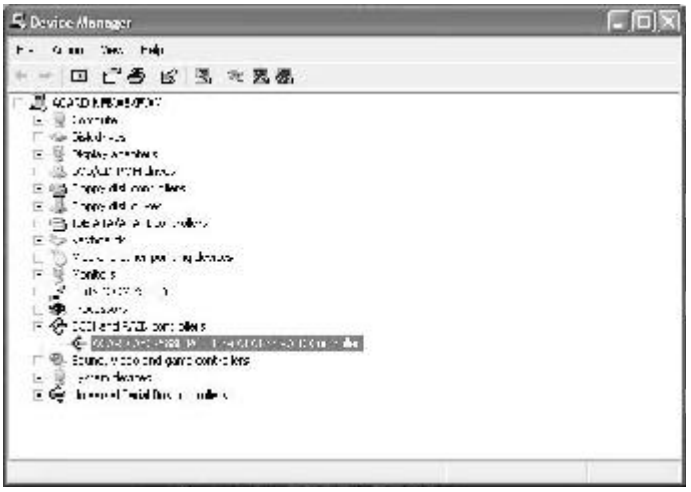
Step 2. Find "**View system information**", double click on it.



Step 3. On "**System Properties**", select "**Hardware**" and click on "**Device Manager**".



Step 4. On "**SCSI and RAID controllers**" to double click on "**ACARD AEC-6880 PCI Ultra ATA133 RAID Controller**" to check whether the device has been successfully connected to *ACARD AEC-6880*.



4.2 Striping Mode (RAID 0) Installation

1. Complete the *ACARD AEC-6880* hardware installation.
2. Boot up the computer; then press <F1> or <F10> to enter the RAID Setup Utility.
3. Select Striping Mode (RAID 0) and the drives. Then press <Esc> to save and quit the utility.
4. Restart the computer, and install the AEC-6880 driver to the Operation System.

4.2.1 DOS Environment

Refer to Chapter 4.1.1 (refer to page 19).

4.2.2 Windows 95/98/ME Environment

Refer to Chapter 4.1.2 (refer to page 20).

4.2.3 Windows 2000/NT Environment

Refer to Chapter 4.1.3 (refer to page 23).

4.2.4 Windows XP Environment

Refer to Chapter 4.1.4 (refer to page 28).

4.3 Mirror Mode (RAID 1) Installation

1. Complete the *ACARD AEC-6880* hardware installation.
2. Boot up the computer; then press <F1> or <F10> to enter the RAID Setup Utility.
3. Select Mirror Mode (RAID 1) and the drives. Then press <Esc> to save and quit the utility.
4. Restart the computer; press <F1> or <F10> to enter the RAID Setup Utility.
5. Enter "Build Mirror Disk", press "Enter" to confirm. Then the data will be copied onto the selected drive.
6. Press <Esc> to save and quit the utility. Restart the computer, and install the *ACARD AEC-6880* driver to the Operation System.

4.3.1 DOS Environment

Refer to Chapter 4.1.1 (refer to page 19).

4.3.2 Windows 95/98/ME Environment

Refer to Chapter 4.1.2 (refer to page 20).

4.3.3 Windows 2000/NT Environment

Refer to Chapter 4.1.3 (refer to page 23).

4.3.4 Windows XP Environment

Refer to Chapter 4.1.4 (refer to page 28).

4.4 RAID 0+1 Mode Installation

1. Complete the *ACARD AEC-6880* hardware installation.
2. Boot up the computer; then press <F1> or <F10> toenter the RAID Setup Utility.
3. Select RAID 0+1 Mode and the drives. Then press <Esc> to save and quit the utility.
4. Restart the computer; press <F1> or <F10> to enter the RAID Setup Utility.
5. Enter "Build Mirror Disk", press "Enter" and confirm. Then the data will be copied onto the selected drive.
6. Then press <Esc> to save and quit the utility. Restart the computer, and install the *ACARD AEC-6880* driver to the Operation System.

4.4.1 DOS Environment

Refer to Chapter 4.1.1 (refer to page 19).

4.4.2 Windows 95/98/ME Environment

Refer to Chapter 4.1.2 (refer to page 20).

4.4.3 Windows 2000/NT Environment

Refer to Chapter 4.1.3 (refer to page 23).

4.4.4 Windows XP Environment

Refer to Chapter 4.1.4 (refer to page 28).

Chapter 5 Troubleshooting

While you have trouble installing ACRAD AEC-6880, follow the trouble-shooting guide below.

1. Check power supply

Check the malfunction devices and the power status (ON / OFF) all the time.

2. Verify IDE device

Before installing the *ACARD AEC-6880,* ensure your IDE device is on the proper mode.

3. Check host adapter

Verify that the adapter card is plugged well in its slot on the motherboard.

4. Check all connectors and cables

Ensure all internal IDE connectors, device power connectors, and cables are well connected. Beware that cables are easily damaged because of un-proper fold. Make sure no connector pins are bent. Finally, verify that pin 1 on the interface cable is aligned with pin 1 on the drive and the host adapter.

Appendix 1 Application Utility

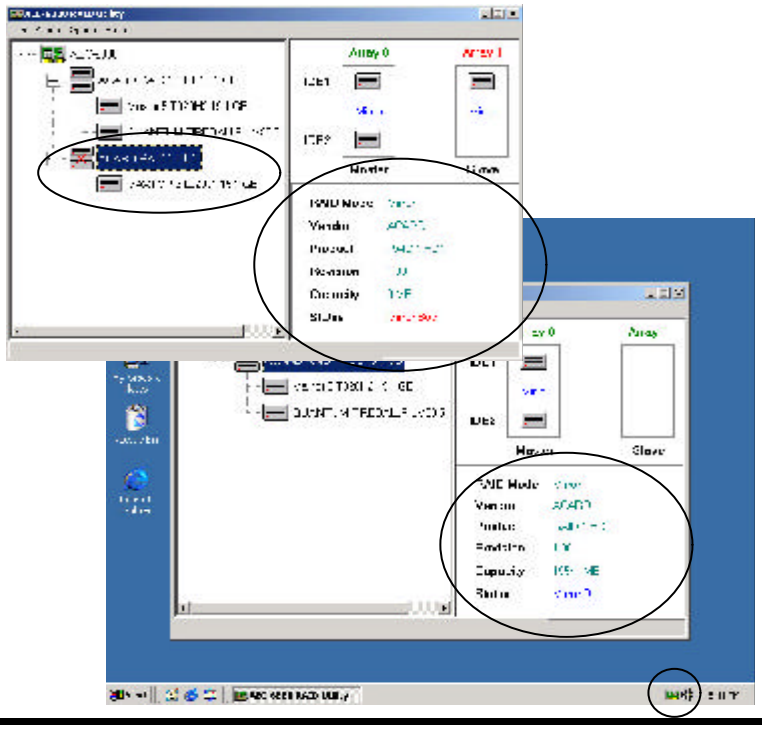
A1-1 AEC-6880 RAID Utility

AEC-6880 RAID Utility will help you to read the information of the hard drives and RAID volume status, which are connected with *ACARD AEC-6880* at Windows OS.

Complete the *ACARD AEC-6880* installation and restart the computer; then you will find the **AEC6880 RAID utility** from ACARD support CD and install it.

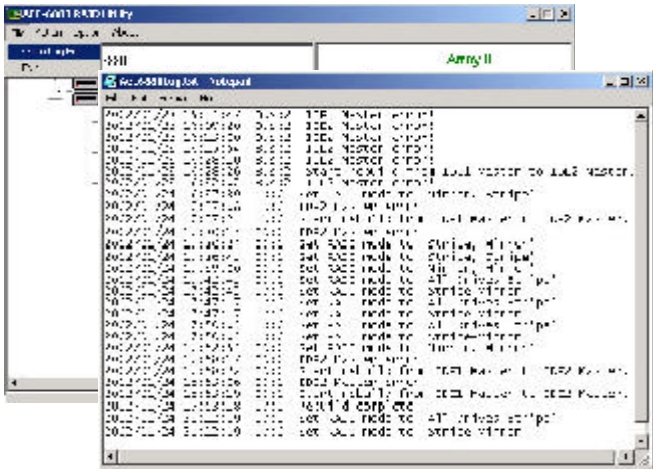
The AEC-6880 RAID utility introduction

When you complete RAID utility installation, the program will automatically pop out and also you will find a tray icon on your screen. This program will monitor the RAID volume status the and properly pop out a message to inform you.



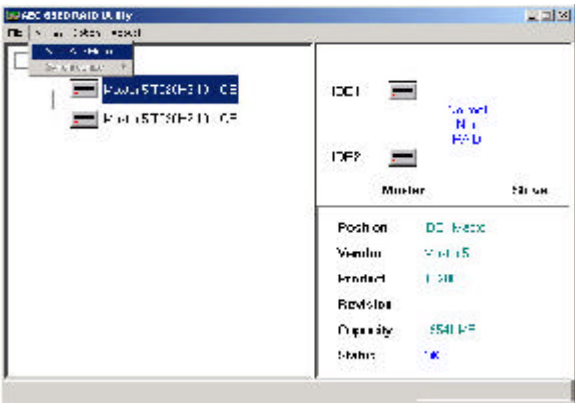
1. Log File

From File/ Open Log File, you can get the every status history of AEC-6880.

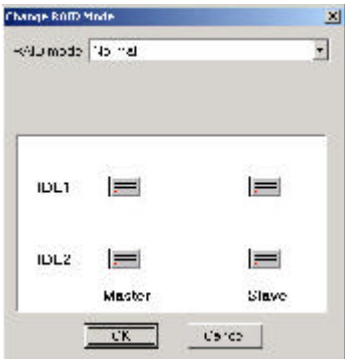


2. Set RAID mode

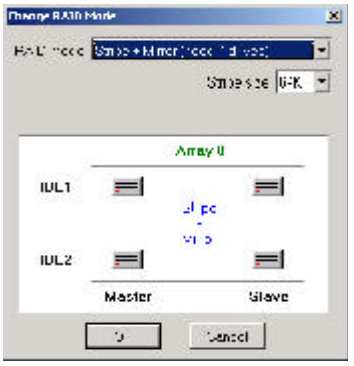
For configure RAID setting by this utility, select Action/ Set RAID mode to choose the RAID mode. There are Normal, All Drive Stripe (need 3 or 4 drives), Stripe+Mirror (need 4 drives) and Two Separate Array (Stripe, Mirror or Stripe*Mirror). Please beware if there have the old data and the partition in the hard disk, after RAID mode change will be completely erased.



Normal

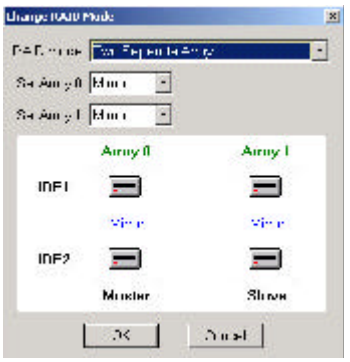


Stripe + Mirror (need 4 drives)

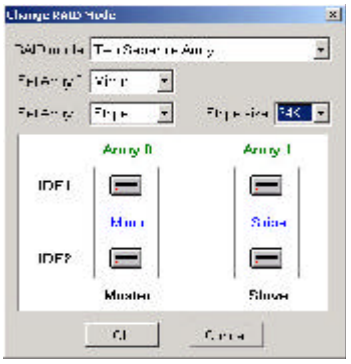


All Drive Stripe
(need 3 or 4 drives)

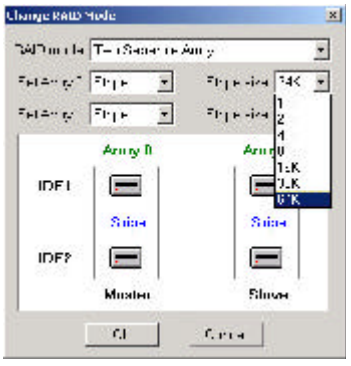
Two Separate Array —Mirror



Two Separate Array —Stripe*Mirror

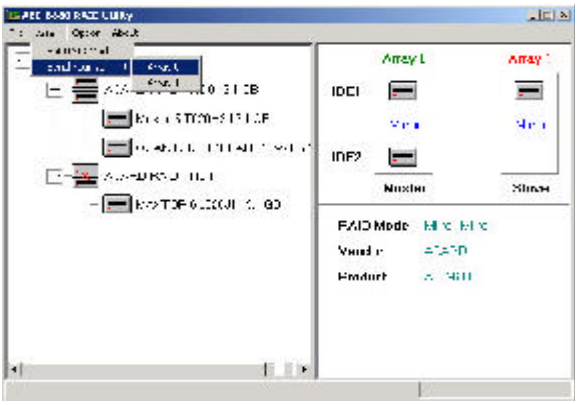


Two Separate Array —Stripe



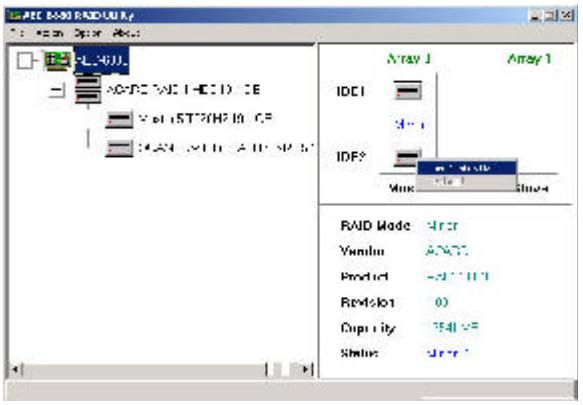
3. Synchronize

For Mirror (RAID 1) arrays to maintain data consonance, synchronization is a keeping procedure on the drives. It will detect any differences data between two drives and automatically copy the data from IDE1 to IDE2. To insure that all Mirror arrays contain the same data.

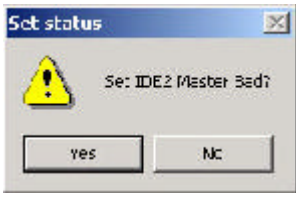


4. Rebuild

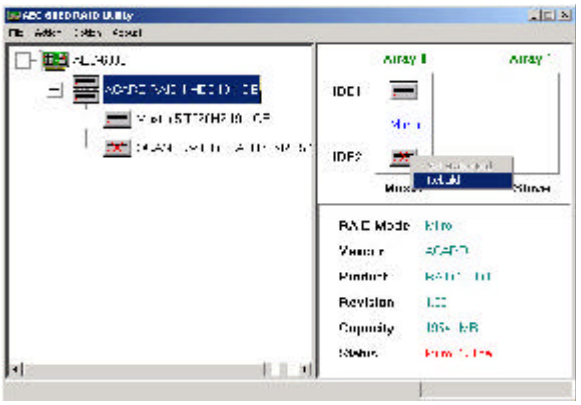
To copies data from an existing data disk in the array on to a blank drive. When a failed drive has been replaced with a new drive as part a mirror array, the operation will be normally used.



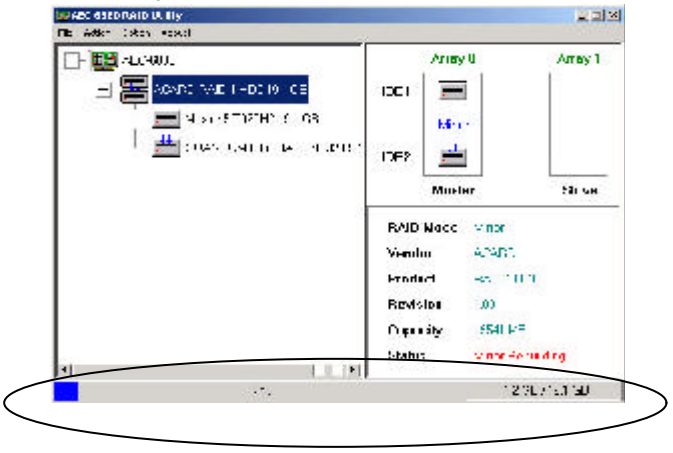
1. To perform a Rebuild, click right button on the target drive and choose " Set Status Bad" .



2. The RAID volume status becomes " Mirror Critical" , then click the right button and select " Rebuild" to start.



3. When the Rebuild begins, the rebuild progress bar will be showed at the bottom of the utility window.



A1-2 ASPITool32 Manager

The **ASPITool32 Manager** program has many functions which aim to make the hard drives work properly under the Windows OS while they are connected with the ACARD SCSI adapter or IDE adapter. The ASPITool32 Manager program has proudly and solely developed by ACARD. You may get the installation executive program from the ACARD Driver CD.

ASPITool32 Manager Functions

1.**FDsik**: Create a partition hard drive.

2.**Disk QErase**: Quickly erase the hard drive contents. Please beware that the data on the partition will be complete erased.

3.**Disk Format**: Format the partition.

4.**Disk Diagnose**: Detect the hard drive and check whether it works properly.

5.**Disk information**: Provide the information of BPB and the partition.

6.**Disk Verify**: Verify the hard drive and check if there is any bad sector.

7.**On Now**: Rescan the SCSI bus and check if there is any new device added.

8.**About**: Provide ASPITool32's information.

9.**Hide**: Hide the toolbar.

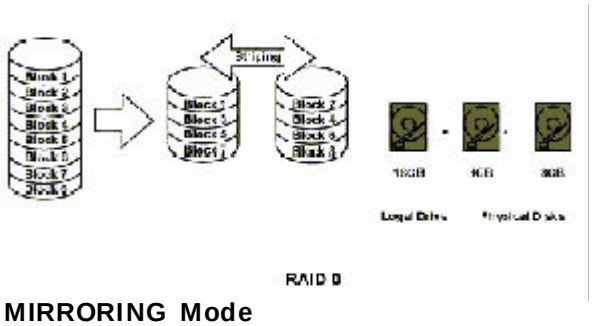
10.**Disk Express Setup**: Instruct how to create and format the partition.

Appendix 2 What is RAID

What is RAID? Redundant Array of Inexpensive Disk, which provides secure management of critical data. The RAID system improves performance, safeguards data, and increases error tolerance. Different methods for moving and managing data are defined as "levels" of RAID protection.

《RAID 0》 STRIPING Mode

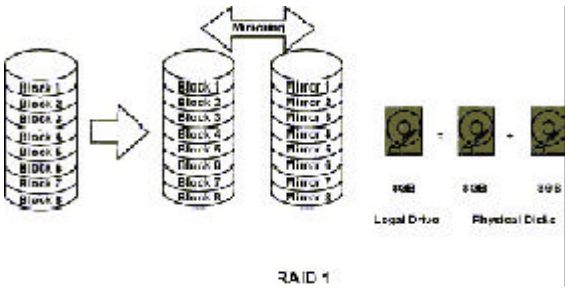
- To speed up the hard disk access ability without error tolerance
- Block "striping" across multiple drives is provided, yielding higher performance that is possible with individual drives. This level does not provide data redundancy.
- RAID 0 (Stripe Mode) diagram



RAID 0

《RAID 1》 MIRRORING Mode

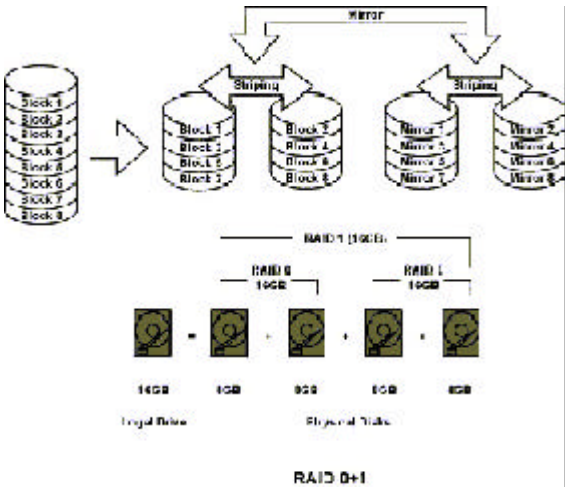
- Mirroring means that all data are completely duplicated to one or more hard disks.
- RAID 1 (Mirror Mode) diagram



RAID 1

《RAID 10》 Stripe Mode + Mirror Mode

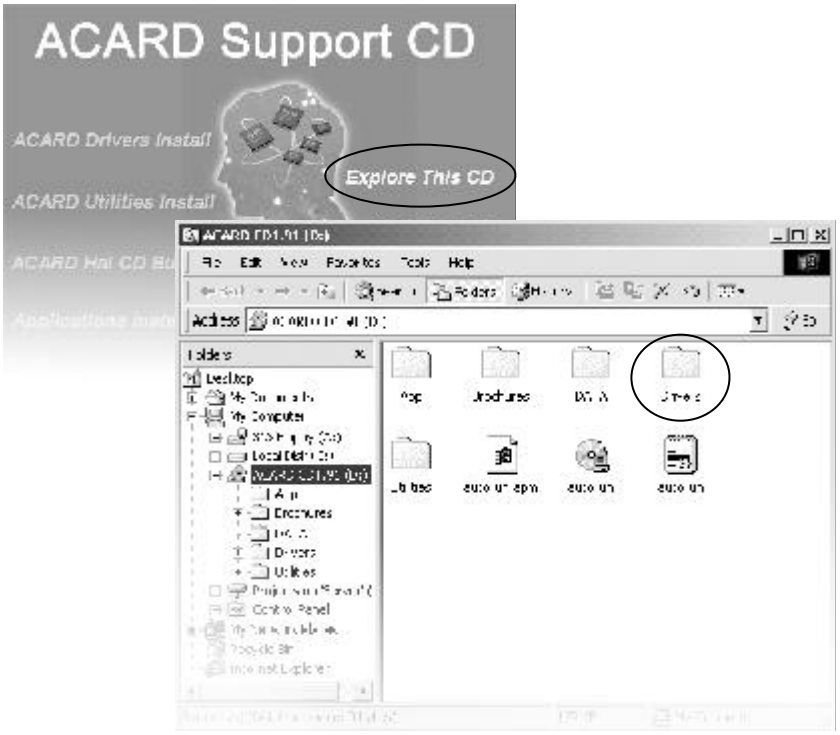
- Combines RAID 0 Striping and RAID 1 Mirroring. This level provides redundancy via Mirroring.
- RAID 10 (Stripe + Mirror Mode) diagram



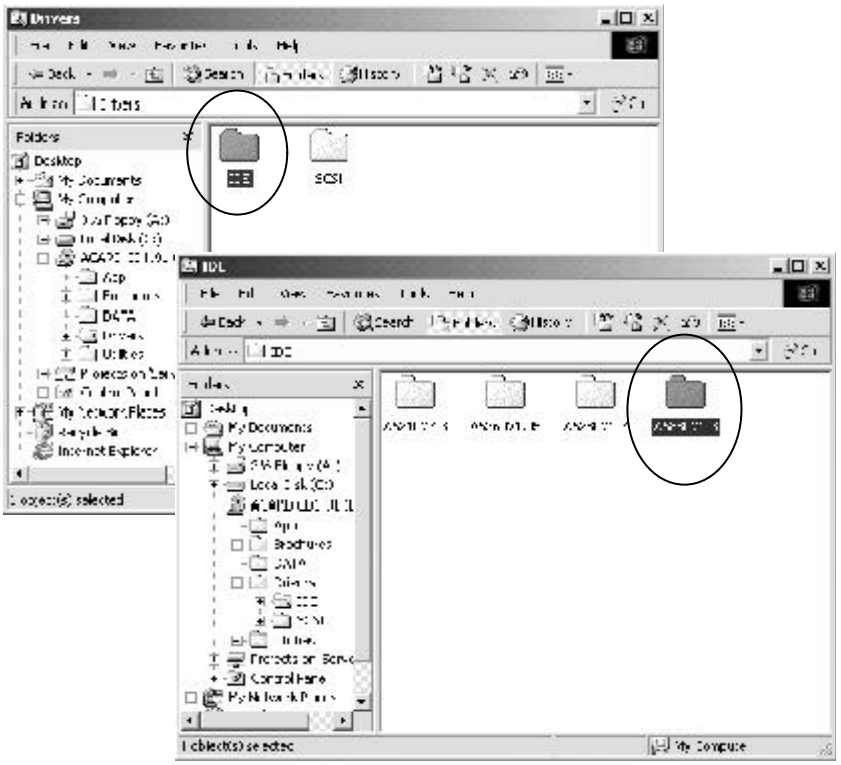
Appendix 3 Create a driver floppy diskette for installating ACARD adapter

When install Operation System and add new device with ACARD adapter, you may need a driver floppy diskette for installing bootable device. Follow the steps below to get the ACARD adapter driver disk. We take AEC-6880 as an example.

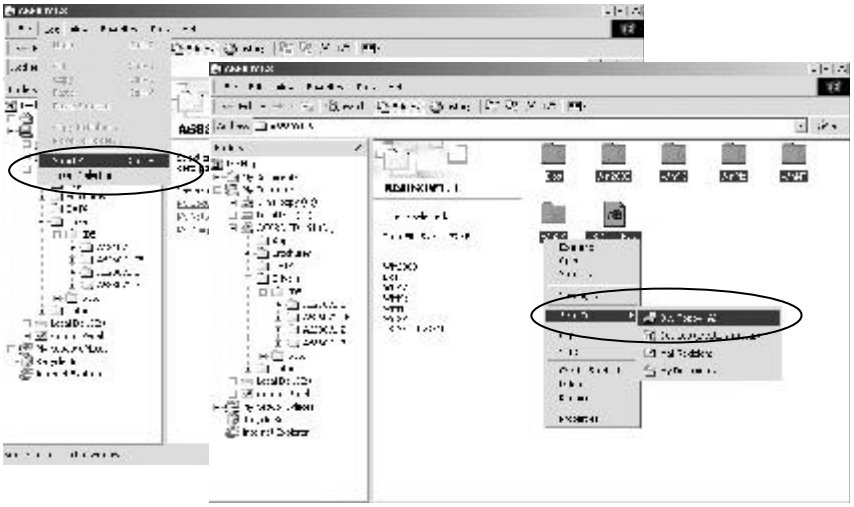
1. Insert ACARD Support CD into CD-ROM.
2. Click " Explore This CD" and then get the CD file window.



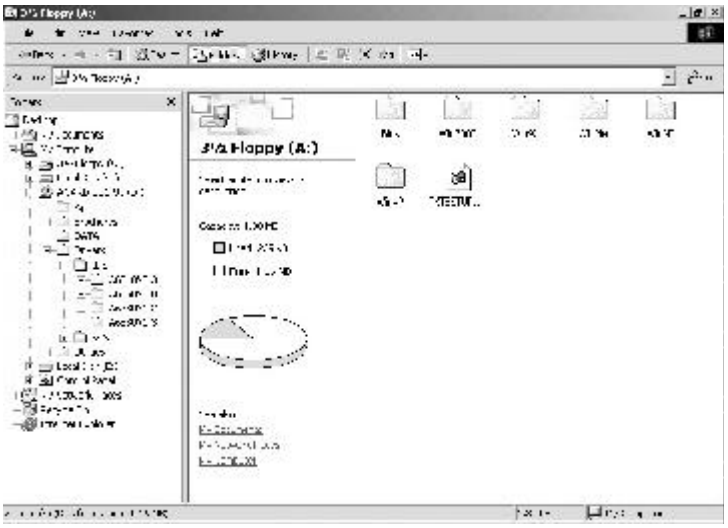
3. Under the "Driver" folder and find the same model number as your adapter. For example, to get AEC-6880 driver is "Driver>IDE> AEC6880V1.x".



4. Get the driver folder and press the right button of the mouse. Choose "Send to 3.5" floppy", meanwhile insert an empty disk into 3.5 floppy.



5. After finishing these steps, get the driver diskette for installing bootable device.



Appendix 4 Technical Support Form

Email: **support@acard.com**

http://www.acard.com

Model	AEC-6880	**F/W Version**	
System Configuration			
Main Board vendor			
BIOS version			
SCSI adapter			
Chipset			
Memory			
Dispay card			
Other I/O card			
OS version			
Hard Disk Configuration			
Hard Disk Model/type			
Capacity			
Firmware version			
Others			
Problem Description			

MALAEC6880XE15-0